WOSC10

PREVIEW QUESTION BANK

Module Name : Elect. Electronics and Communication Instru. and Biomed. Engg-E

Exam Date : 25-Mar-2018   Batch : 11:00-13:00

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Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	1	Fedaration Cup, World Cup, Allwyn International Trophy and Challenge Cup are awarded to winners of A1: Tennis **A2: Volleyball – (Correct Alternative)** A3: Basketball A4: Cricket	1.0	0.25
Objective Question				
2	2	Which is the first country in the world to use drones for national mail service? A1: Russia	1.0	0.25

A2: **France – (Correct Alternative)**

A3: Sweden

A4: China

Objective Question				

3	3	Consider the following materials/objects:
		
		    A. Cornea
		    B. Diamond
		    C. Silicon
		    D. Sodium Chloride
		
		The above materials/objects when arranged in increasing order of refractive index would be as follows:
		
		A1: ADCB
		
		A2: **ADBC – (Correct Alternative)**
		
		A3: DABC
		
		A4: DACB
			1.0	0.25

Objective Question				
4	4	Various developed countries often claim that cattles in less developed countries are responsible for huge release of green house gases, thus causing green house effect. The developed countries often use this logic that these countries have lot of low yield cattle and if high yield cattle are adopted on a large basis, then release of significant amount of greenhouse gases can be checked from releasing in the atmosphere. Cattles release the greenhouse gases due to:	1.0	0.25

A1 **Methanogenic bacteria in the stomach – (Correct**
: Alternative)

A2 : Improper handling of cow waste (eg: cow-dung, urine,etc.)

A3 : Improper handling of leftover fodder

A4 : High use of chemical fertilizers in agriculture

Objective Question				

5	5	Consider the following statements and select the wrong option	1.0	0.25

A1 : If a person is stung by a honeybee it causes pain and irritation. In such case, if baking soda is applied to the area, it provides relief to the person.

A2 : Vitamin E is helpful in relief from sunburns

A3 On various sunscreen creams/lotions SPF is mentioned.
: SPF stands for Sun Protection Factor. SPF 20 means that
the lotion is protecting you from 20% of the harmful UV
radiations in the sunlight. – (Correct Alternative)

A4 : Vitamin D is required for the absorption of calcium by human beings

Objective Question				

6	6		1.0	0.25

Following are some observed natural phenomena :

A. Mirage seen in places like deserts

B. In winter sound of a whistle of a railway engine is heard at much longer distances

C. Twinkling of a star in night as seen by naked eye

D. Visibility of sun for some time after the sunset

Which of the above natural phenomena are related to the variation in density of atmospheric air?

A1 : ABD

A2 : BCD

A3 : ABCD – (Correct Alternative)

A4 : None of these

Objective Question				
7	7	The following are some common diseases: A. Diphtheria B. Rabies C. Cholera D. Malaria Which of the above diseases are not caused by Virus? A1 : ABC A2 BCD	1.0	0.25

:

A3 ADC – (Correct Alternative)
:

A4 ABD
:

Objective Question				
8	8	Which of the following is Greenhouse gas? A1 Carbon Monoxide : **A2 Carbon Dioxide – (Correct Alternative)** : A3 Sulphur Dioxide : A4 Chlorine :	1.0	0.25
Objective Question				
9	9	Tuberculosis is caused due to **A1 Bacteria – (Correct Alternative)** : A2 Virus : A3 Fungus : A4 None of the above :	1.0	0.25

Objective Question				
10	10	United Nations Headquarter is situated at A1 : Geneva A2 : Washington D.C. **A3 : New York – (Correct Alternative)** A4 : Paris	1. 0	0.2 5

Objective Question				
11	11	A seller gives a discount of 25% on a product with MRP marked INR 3680. He earns a profit of 15% over its cost price in this transaction. Cost price of the product is A1 : 2100 A2 : 2200 A3 : 2300 **A4 : 2400 – (Correct Alternative)**	1. 0	0.2 5

Objective Question				
12	12	The side of a rectangular field is in ratio 4:5. Area of the field is 12500 sq mt. If the cost of fencing is INR 5/meter, how much it will cost to fence entire field? A1 : INR 61,000	1. 0	0.2 5

A2 : **INR 62,500 – (Correct Alternative)**

A3 : INR 63,500

A4 : INR 65,000

Objective Question

| 13 | 13 | A box has 3 red, 2 yellow and 5 green balls. If two balls are drawn at random, what is the probability that both are yellow balls? | 1.0 | 0.25 |

A1 : **1⁄45 – (Correct Alternative)**

A2 : 5⁄18

A3 : 3⁄31

A4 : 2⁄9

Objective Question

| 14 | 14 | If X and Y together can do a piece of work in 6 days. X alone can do the same work in 15 days. What time will Y take to do the same work alone? | 1.0 | 0.25 |

A1 : 8 days

A2 : 9 days

A3 : **10 days – (Correct Alternative)**

A4 : 12 days

Objective Question			
15	15	If a solid sphere of radius 15 cm is molded into 27 spherical smaller solid balls of equal radius, then the surface area of each smaller ball is **A1 :** **$100\Omega cm^2$ – (Correct Alternative)** **A2 :** $105\Omega cm^2$ **A3 :** $110\ \Omega cm^2$ **A4 :** $115\Omega cm^2$	1.0	0.25

Objective Question			
16	16	Three six-sided dice are rolled simultaneously, what is the probability of getting a different number on each dice? **A1 :** $1/3$ **A2 :** $2/3$ **A3 :** $4/9$ **A4 :** **$5/9$ – (Correct Alternative)**	1.0	0.25

Objective Question

| 17 | 17 | The speed of a boat is 20 km/hr in still water. If the river is running at 5 km/hr, it takes boat 96 minutes to go to a place and come back to initial position. How far is the place from the initial point? | 1.0 | 0.25 |

A1 : 12 km

A2 : 13 km

A3 : 15 km – (Correct Alternative)

A4 : 18 km

Objective Question

| 18 | 18 | What is the probability of drawing an Ace or a King from a deck of 52 cards? | 1.0 | 0.25 |

A1 : 1/13

A2 : 2/13 – (Correct Alternative)

A3 : 1/52

A4 : 1/26

Objective Question

| 19 | 19 | A cricketer has an average of 55 runs in 5 innings. Find out how many runs she needed to score in her sixth innings to raise her average to 60 runs? | 1.0 | 0.25 |

		A1: 60		
		A2: 75		
		A3: 80		
		A4: **85 – (Correct Alternative)**		

Objective Question

20	20	The LCM of two numbers is 900 and their HCF is 50. If one of the numbers is 450, the other is	1.0	0.25
		A1: 120		
		A2: **100 – (Correct Alternative)**		
		A3: 125		
		A4: 150		

Objective Question

21	21	If you write an original software, what type of IP rights you can get to make and sell copies of your work?	1.0	0.25
		A1: **Copyright – (Correct Alternative)**		
		A2: Patents		

| | | A3: Registered Designs | | |
| | | A4: Trademarks | | |

Objective Question

22	22	International organization with objective to encourage creative activity and to promote intellectual property throughout world is	1.0	0.25
		A1: WIPO – (Correct Alternative)		
		A2: World Bank		
		A3: WTO		
		A4: UNDP		

Objective Question

23	23	_____ is a form of intellectual property that protects the expression of ideas	1.0	0.25
		A1: Trade name		
		A2: Copyright – (Correct Alternative)		
		A3: Patent		
		A4: Trade Mark		

Objective Question				
24	24	A formula, process, device or other business information that has commercial value and is kept confidential to maintain an advantage over competitors is known as a:	1.0	0.25

A1 : Patent

A2 : Trade secret – (Correct Alternative)

A3 : Copyright

A4 : Trade Mark

Objective Question				
25	25	Fair use allows you to use a limited amount of copyrighted material for your educational use. Which step below does NOT pass the fair use test?	1.0	0.25

A1 : Will be used for a non-profit educational purpose

A2 : Will be used on a Web page – (Correct Alternative)

A3 : Will only use a small portion

A4 : Will not deprive the author from making money

Objective Question				
26	26	Term of patent in India is	1.0	0.25

A1 : 15 years

		A2: 25 years		
		A3: 20 years – (Correct Alternative)		
		A4: 10 years		

Objective Question

27	27	What does a trademark protect?	1.0	0.25
		A1: An invention		
		A2: a work of art		
		A3: logos, names and brands – (Correct Alternative)		
		A4: the look, shape and feel of a product		

Objective Question

28	28	If a company develops a new technology that improves its main product, what type of intellectual property can they use to stop others from copying their invention ?	1.0	0.25
		A1: Copyright		
		A2: Geographical indications		
		A3: Patents – (Correct Alternative)		

		A4: Trademarks		

Objective Question

29	29	A patent awarded by the patent office in Japan is valid in: A1: Indonesia **A2: Japan – (Correct Alternative)** A3: All ASEAN countries A4: All countries that adhere to TRIPS	1.0	0.25

Objective Question

30	30	Which of the following is NOT a basic requirement for a patent? A1: It must have utility A2: It must be novel A3: It must not be obvious to a person of ordinary skill in the field **A4: It must be extraordinary creative – (Correct Alternative)**	1.0	0.25

Objective Question

31	31	Choose the word or phrase that is most nearly opposite in meaning to the word in capital letter . LICENSED:	1.0	0.25

		A1:	Unnoticed		
		A2:	unwritten		
		A3: not formally authorised – (Correct Alternative)			
		A4:	not properly trained		

Objective Question

32	32	Clear the jumble and select a grammatically correct sentence which also makes sense. To/ pay/ fifty/ rupees/ much/ too/ was/ me/ for/ thousand/ just	1.0	0.25
		A1: Fifty thousand rupees was just too much for me to pay – (Correct Alternative)		
		A2: Pay just fifty thousand rupees to me was too much		
		A3: Fifty thousand rupees was too much just to pay for me		
		A4: To pay just fifty thousand rupees was too much for me		

Objective Question

33	33	Select the word or set of words that best completes the following sentence. Because our supply of fossil fuel has been sadly ___, we must find ___ source of energy.	1.0	0.25
		A1: stored…..hoarded		
		A2: compensated……significant		

		A3: exhausted….inefficient		
		A4: depleted…..alternate – (Correct Alternative)		

Objective Question

34	34	Tick the word <u>closest</u> in meaning to the word in *italics* - an *audacious* attempt	1.0	0.25
		A1: useless		
		A2: foolish		
		A3: bold – (Correct Alternative)		
		A4: crazy		

Objective Question

35	35	Choose the most appropriate word to complete the following sentence: There is a _____ of cows in the next field.	1.0	0.25
		A1: Flock		
		A2: Swarm		
		A3: Group		
		A4 Herd – (Correct Alternative)		

		:		

Objective Question

36	36	Choose the phrase which fits the sentence best : The bus _____ coming.	1.0	0.25

A1 : Will

A2 : Has

A3 : Is – (Correct Alternative)

A4 : On

Objective Question

37	37	Choose the correctly spelt word:	1.0	0.25

A1 : adversity – (Correct Alternative)

A2 : adeversity

A3 : advercity

A4 : aedversity

Objective Question

38	38	Which of the following words best explains the phrase given below? One who abandons his religious faith.	1.0	0.25

A1
: traitor

**A2
: apostate – (Correct Alternative)**

A3
: prostrate

A4
: blasphemer

Objective Question

39	39	Select the word that is most appropriate to complete the sentence: He was blind _____ one eye.	1.0	0.25

A1
: with

A2
: along

**A3
: in – (Correct Alternative)**

A4
: on

Objective Question

40	40	Choose the word or phrase that is most nearly opposite in meaning to the given word. **Widely**	1.0	0.25

**A1
: narrowly – (Correct Alternative)**

A2
: spaciously

		A3 : broadly		
		A4 : relatively		

Objective Question

41	41	Which of the following are prime numbers?	1.0	0.25
		A1 : 1,3,5		
		A2 : 1,5,7		
		A3 : 2,3,5 – (Correct Alternative)		
		A4 : 1,7,9		

Objective Question

42	42	A watch which gains 5 seconds in 3 minutes was set right at 7 a.m. In the afternoon of the same day, when the watch indicated quarter past 4 o'clock, the true time is	1.0	0.25
		A1 : $59\frac{7}{11}$ min. past 3 p.m.		
		A2 : 4 P.M. – (Correct Alternative)		
		A3 : $58\frac{7}{11}$ min., past 3 p.m.		
		A4 : $2\frac{3}{11}$ min. past 4 p.m		

Objective Question

| 43 | 43 | In a shower, 5 cm of rain falls. The volume of water that falls on 1.5 hectares of ground is | 1.0 | 0.25 |

A1: 75 cu. m

A2: 750 cu. m – (Correct Alternative)

A3: 7500 cu. m

A4: 75000 cu. m

Objective Question

| 44 | 44 | The total time taken by a boatman to row his boat upstream and downstream distance of 56 km together is 12 hours. The difference between times taken by him to row his boat another upstream and downstream distance of 42 km is 3 hours. Find the speed of boat and stream. | 1.0 | 0.25 |

A1: 12.5 kmph, 1.5 kmph

A2: 11.5 kmph, 2.5 kmph

A3: 9.5 kmph, 4.5 kmph

A4: 10.5 kmph, 3.5 kmph – (Correct Alternative)

Objective Question

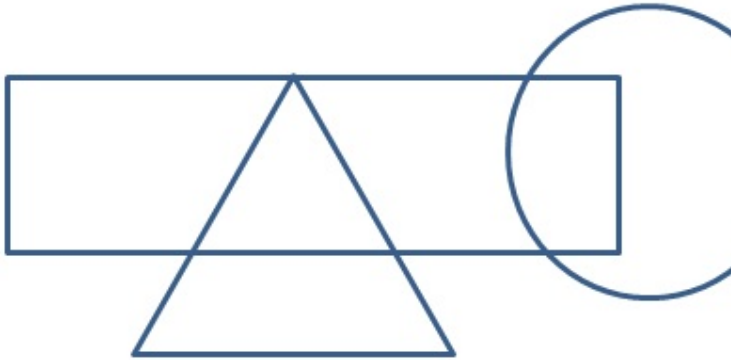| 45 | 45 | A says to B "I am twice as old as you were when I was as old as you are". The sum of their ages is 56 years. Find the difference of their ages. | 1.0 | 0.25 |

A1 : 9

A2 : 11

A3 : 13

A4 : 8 – (Correct Alternative)

Objective Question

| 46 | 46 | A container contains 40 litres of milk. From this container 4 litres of milk was taken out and replaced by water. This process was repeated further two times. How much milk is now contained by the container? | 1.0 | 0.25 |

A1 : 26.16

A2 : 28.16

A3 : 29.16 – (Correct Alternative)

A4 : 30.16

Objective Question

| 47 | 47 | How many times is the HCF of 48, 36, 72, and 24 contained in their LCM? | 1.0 | 0.25 |

A1 : 8 times

A2 16 times

:

A3 **12 times – (Correct Alternative)**
:

A4
: 4 times

Objective Question

| 48 | 48 | In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together? | 1.0 | 0.25 |

A1
: 120

A2 **720 – (Correct Alternative)**
:

A3
: 4320

A4
: 1440

Objective Question

| 49 | 49 | Tea worth Rs. 126 per kg and Rs. 135 per kg are mixed with a third variety in the ratio 1:1:2. If the mixture is worth Rs. 153 per kg, the price of the third variety per kg will be: | 1.0 | 0.25 |

A1
: Rs. 169.50

A2
: Rs. 170

A3
: Rs. 180
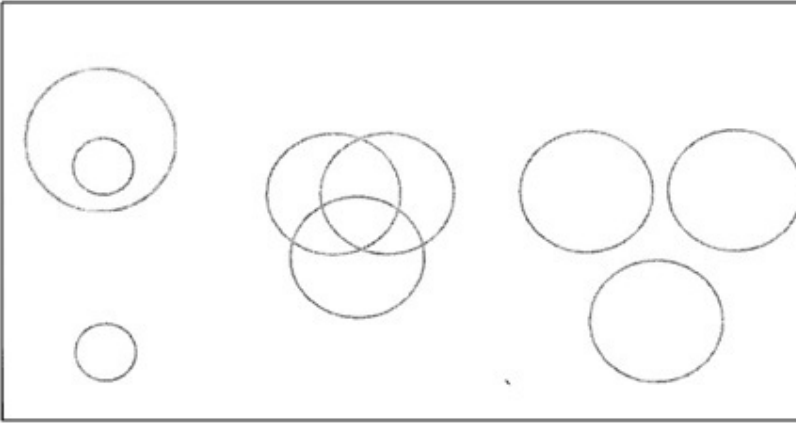
		A4 : **Rs. 175.50 – (Correct Alternative)**		

Objective Question

50	50	In an exam, Class A scored an average of 50 marks with standard deviation of 5. Class B scored an average of 50 with standard deviation of 9. Which of the following statements is true?	1.0	0.25
		A1 : Class B has more students than Class A.		
		A2 : Class A has more students than Class B		
		A3 : Class A has more outlier students than Class B		
		A4 : **Class B has more outlier students than Class A – (Correct Alternative)**		

Objective Question

51	51	C is favorite child of F. C is fond of her younger brother B. B is not the only sibling of A. F loves her father M. What is A to M?	1.0	0.25
		A1 : **Grand child – (Correct Alternative)**		
		A2 : Grand parent		
		A3 : No relation		
		A4 : Parent		

Objective Question

52	52	If HEN = 124; WIRE = 9752; and RAT = 538, EATEN is	1.	0.2

_____?   0 5

A1
:   28324

A2
:   23874

**A3
:   23824 – (Correct Alternative)**

A4
:   42832

Objective Question

| 53 | 53 | A pen was marked as Rs 1000. After a good negotiation, I bought it at a discount of 20%. Now I am offering the same pen at 20% profit. What is the difference between the new price and old price? | 1.0 | 0.25 |

A1
:   Rs. 160

A2
:   Rs. 200

**A3
:   Rs. 40 – (Correct Alternative)**

A4
:   No difference

Objective Question

| 54 | 54 | In Roman numerals, M, L, and XL stand for _____. | 1.0 | 0.25 |

**A1
:   1000, 50, 40 – (Correct Alternative)**

A2 :	40, 42, 44
A3 :	30, 40, 50
A4 :	1000, 40, 50

Objective Question

| 55 | 55 | In the following diagram, triangle represents mathematicians, re programmers and circle represents philosophers. Which of the follov incorrect? | 1. 0 | 0.2 5 |

A1 : Some of the philosophers are programmers.

A2 : Some of the programmers are mathematicians.

**A3 Some of the mathematicians are philosophers. – (Correct
: Alternative)**

A4 : Some of the programmers are not mathematicians

Objective Question

| 56 | 56 | | 1. | 0.2 |

Which of the diagrams best fits the association betwee
Sparrow.

A   B   C

A1 : **A – (Correct Alternative)**

A2 : B

A3 : C

A4 : D

Objective Question

57	57	A person walks at 10km/h for 6hr and at 8km/h for 12hr. Her average speed is _____ km/h	1. 0	0.2 5

A1 : 6.22

A2 8.67 – (Correct Alternative)

:

A3 3.77
:

A4 9
:

Objective Question

| 58 | 58 | If K and M together own 1750 balls. If 4⁄25 of K's share is equal to 2⁄5 of M's share, how many balls M have? | 1.0 | 0.25 |

A1 1250
:

A2 500 – (Correct Alternative)
:

A3 750
:

A4 1050
:

Objective Question

| 59 | 59 | A large number of people suffer from Dengue every year in India. Dengue is spread by female mosquitoes during the day time. Dengue can be prevented by avoiding all chances of mosquitoes breeding. The para best supports the statement that | 1.0 | 0.25 |

A1 Male mosquitoes do not spread diseases
:

A2 People should not step out during the day time
:

A3 Mosquitoes breeding should be stopped – (Correct
: Alternative)

		A4: Dengue is the only diseases that affects Indian people		

Objective Question

60	60	A player was asked to run around the circular cricket ground as punishment. The coach was standing at the exact center of the ground which was 100 M from the boundary. How much distance does the player cover in one round? A1: 200.8 **A2: 628.32 – (Correct Alternative)** A3: 800.8 A4: 400.4	1.0	0.25

Objective Question

61	61	In practical applications, battery voltage A1: is always constant A2: will be reduced to zero as power is drawn A3: is restored as soon as load is disconnected **A4: is lowered as load increases – (Correct Alternative)**	1.0	0.25

Objective Question

62	62	Shunting the AC component away from the load is the task of a	1.0	0.25
		A1: Transformer		
		A2: Voltage Regulator		
		A3: Filter – (Correct Alternative)		
		A4: Rectifier		

Objective Question

63	63	A diode for which you can change the reverse bias and vary the capacitance is called a	1.0	0.25
		A1: Zener Diode		
		A2: Tunnel Diode		
		A3: Varactor Diode – (Correct Alternative)		
		A4: Switching Diode		

Objective Question

64	64	In a power supply diagram, where should you expect a smooth DC output? At the output of	1.0	0.25
		A1: Rectifier		
		A2 Transformer		

:

A3 **Regulator – (Correct Alternative)**
:

A4 Filter
:

Objective Question

65	65	For a certain load, the true power is 100W and the reactive power is 75W. The apparent power is	1.0	0.25

A1 25W
:

A2 125W
:

A3 122.4W
:

A4 **None of the above – (Correct Alternative)**
:

Objective Question

66	66	Increasing the number of turns on the secondary of a transformer will	1.0	0.25

A1 Increase the secondary current
:

A2 **Decrease the secondary current – (Correct Alternative)**
:

A3 Increase the primary current
:

A4 Decrease the primary current

		:		

Objective Question

67	67	If the value of C in a series RLC circuit is decreased, the resonant frequency	1.0	0.25

A1: is reduced to zero

A2: increases – (Correct Alternative)

A3: decreases

A4: is not affected

Objective Question

68	68	The 555 timer can be used in which of the following configurations?	1.0	0.25

A1: bistable, tristable

A2: monostable, bistable

A3: astable, monostable and bistable – (Correct Alternative)

A4: astable, toggled

Objective Question

69	69	The output of a certain resistance divider is 12V with no load. When a resistive load is connected, the output voltage	1.0	0.25

		A1 :	remains the same	
		A2 :	increases	
		A3 :	**decreases – (Correct Alternative)**	
		A4 :	becomes zero	
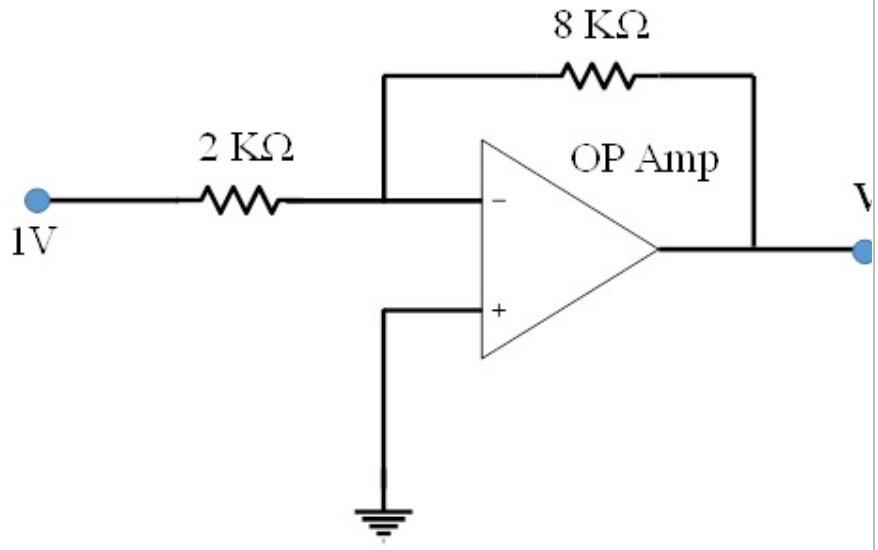
Objective Question

| 70	70	' V' curve for a synchronous motor is plotted between – in X axis and ---- in Y axis	1.0	0.25
		A1 : **I_f and I_a – (Correct Alternative)**		
		A2 : I_a and V_t		
		A3 : V_t and I_f		
		A4 : power factor and I_f		

Objective Question

71	71	Four memory chips of 16 x 4 sizes have their address buses connected together. This system will be of size	1.0	0.25
		A1 : 64 x 4		
		A2 : 32 x 8		

A3: **16 x 16 – (Correct Alternative)**

A4: 256 x 1

Objective Question

| 72 | 72 | A RAM chip has a capacity of 1024 words of 8 bits each (1K X 8). The number of 2 X 4 decoders with enable line needed to construct a 16K X 16 RAM from 1K X 8 RAM is: | 1.0 | 0.25 |

A1: 4

A2: **5 – (Correct Alternative)**

A3: 6

A4: 7

Objective Question

| 73 | 73 | Which of the following is used in digital circuits to control signal and data routing | 1.0 | 0.25 |

A1: **Multiplexers. – (Correct Alternative)**

A2: Program counters

A3: Flip-flops

A4: Gates

| 74 | 74 | | 1.0 | 0.25 |

The output voltage (V_o) of the op-amp in the Figure is

A1 : **4V – (Correct Alternative)**

A2 : 2V

A3 : 1V

A4 : 8V

| 75 | 75 | | 1.0 | 0.25 |

If the current gain (β, which is a ratio of collector current to base curren
(voltage difference between collector and emitter) in the Figure is
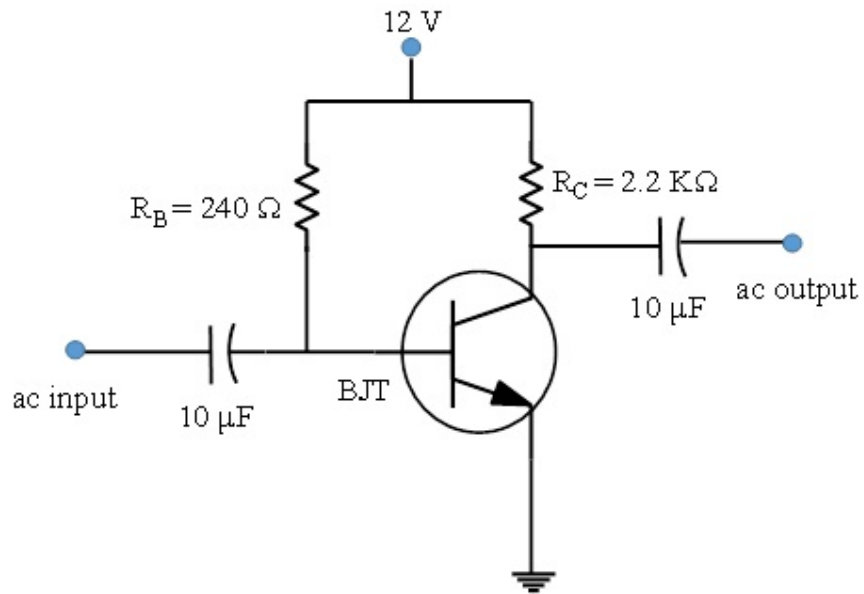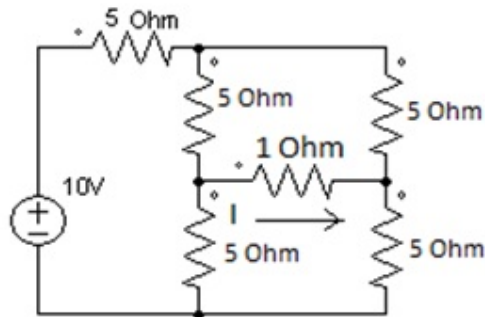

A1 **6.83V – (Correct Alternative)**

A2 2.83V

A3 0.83V

A4 4.83V

Objective Question

| 76 | 76 | | 1.10 | 0.25 |

In the following circuit, the value of current 'I' through 1 Ohm resistance is

A1 : 5 Amp

A2 : 1Amp

A3 : 2Amp

A4 : 0Amp – (Correct Alternative)

Objective Question		
77	77	A silicon diode normally has a forward voltage drop of

A1 : 0.2 V

A2 : 2 V

A3 : 0.7 V – (Correct Alternative)

A4 None of the above

		:		

Objective Question

78	78	The output current of a solar PV cell ------------------ with increase in the incident light intensity at a given load.	1.0	0.25
		A1: **increases – (Correct Alternative)**		
		A2: decreases		
		A3: remains the same		
		A4: None of the above		

Objective Question

79	79	Which of the following machines are self-starting?	1.0	0.25
		A1: 3-phase synchronous motor		
		A2: **3-phase induction motor – (Correct Alternative)**		
		A3: Single-phase induction motor fitted with main winding only		
		A4: None of the above		

Objective Question

80	80	Negative sequence relay is used for sensing	1.0	0.25
		A1: **unbalanced loading – (Correct Alternative)**		

A2
:
overloading

A3
:
overheating

A4
:
over voltages

Objective Question

81	81	The unit of resistivity (ρ) of any material is	1.0	0.25

A1
: $Ohm.m^{-1}$

A2
:   Ohm.m   **– (Correct Alternative)**

A3
: Ohm/m^{2}

A4
: $Ohm.m^{2}$

Objective Question

82	82	An ac source of 50V with a series impedance of 2.5+j4 Ω is feeding a load of 2.5-j4 Ω. The current drawn from the source would be at a power factor of	1.0	0.25

A1
:
zero

A2
:
0.5

| | | A3: | 0.866 | | |
| | | A4: | **1 – (Correct Alternative)** | | |

Objective Question

83	83	To reverse the direction of rotation of a 3-phase induction motor you should	1.0	0.25
		A1: reverse the current flowing through the windings of the motor		
		A2: reverse the phase sequence of the 3-phase supply to the stator terminals – (Correct Alternative)		
		A3: remove one of the phase connections		
		A4: none of the above		

Objective Question

84	84	A synchronous motor connected to an infinite bus is running at light load at unity power factor; its shaft load is increased to 100%load without changing excitation, its new power factor will be	1.0	0.25
		A1: unity		
		A2: leading		
		A3: lagging – (Correct Alternative)		
		A4: none of the above		

Objective Question

| 85 | 85 | In an RLC series circuit, R=5 Ohms, L= 0.5 Henry, and C=1⁄8 Farad. The natural response of the circuit will be | 1.0 | 0.25 |

A1: **Over damped – (Correct Alternative)**

A2: under damped

A3: critically damped

A4: time invariant

Objective Question

| 86 | 86 | For maximum power in A.C. circuits with fixed power factor, the following must be true regarding complex load impedance Z_L and the complex Thevenin's equivalent impedance Z_{Th} | 1.0 | 0.25 |

A1: $Z_L = Z_{Th}$ in magnitude

A2: $Z_L = Z_{Th}$ in phase

A3: $Z_L = Z_{Th}$

A4: $Z_L = Z_{Th}^{*}$ **– (Correct Alternative)**

Objective Question

| 87 | 87 | In an Induction Motor, the stator and rotor revolving fields | 1.0 | 0.25 |

		A1 :	**are revolving, but stationary with respect to each other – (Correct Alternative)**		
		A2 :	have slip speed difference between them		
		A3 :	are stationary and revolving respectively		
		A4 :	are stationary with respect to ground		

Objective Question

88	88	If the power factors of Synchronous generator and a synchronous motor are both leading, the excitations EG and EM respectively for the generator and motor are	1.0	0.25
		A1 : both over excited		
		A2 : both under excited		
		A3 : EG over excited and EM under excited		
		A4 : EG under excited and EM over excited – (Correct Alternative)		

Objective Question

89	89	In a synchronous motor operation the EMF E and terminal voltage V have the following relation	1.0	0.25
		A1 : E lags V by angle theta – (Correct Alternative)		
		A2 : E and V are in phase		

		A3: E leads V by angle theta		
		A4: E and V are in phase opposition		

Objective Question

90	90	The motor used in a ceiling fan is of the following type	1.0	0.25
		A1: Induction – (Correct Alternative)		
		A2: Shaded pole		
		A3: Reluctance		
		A4: Universal		

Objective Question

91	91	The nature of current of a dc motor supplied through a SCR chopper is	1.0	0.25
		A1: sinusoidal		
		A2: non sinusoidal		
		A3: constant		
		A4: exponential rise and decay – (Correct Alternative)		

Objective Question

| 92 | 92 | In a control system, the zero steady state error can only be ensured by the following type of control | 1.0 | 0.25 |

A1: **integral – (Correct Alternative)**

A2: derivative

A3: proportional

A4: proportional plus derivative

Objective Question

| 93 | 93 | In a lossless transmission line terminated with the surge impedance, the voltage profile along the line from the sending end to the receiving end is | 1.0 | 0.25 |

A1: decreasing

A2: increasing

A3: first increasing and then decreasing

A4: **flat – (Correct Alternative)**

Objective Question

| 94 | 94 | The coefficient of reflection of voltage wave for a short circuited line is | 1.0 | 0.25 |

A1: 1

A2:	0	
A3:	-1.0 – (Correct Alternative)	
A4:	2	

Objective Question

95	95	If the transformer frequency is changed from 50 Hz to 100 Hz, at constant voltage, the eddy current loss will change from the old frequency to the new one by a factor of	1.0	0.25
		A1: 4 – (Correct Alternative)		
		A2: 2		
		A3: 0.25		
		A4: 0.5		

Objective Question

96	96	Frequency of ultrasound used in medical imaging for diagnostic purposes are in the range of	1.0	0.25
		A1: < 1MHz – (Correct Alternative)		
		A2: 1-20 Hz		
		A3 1-20 KHz		

		:		
		A4 : 1-20 MHz		

Objective Question

97	97	In a Pulse Oximeter equipment, _____ is used to determine the level of arterial oxygen saturation.	1. 0	0.2 5
		A1 : Laser beam		
		A2 : X-Ray beam		
		A3 : Ultrasound wave		
		A4 : Infrared light – (Correct Alternative)		

Objective Question

98	98	The mono polar EEG records the voltage difference between the active electrode on scalp with respect to the reference electrode on	1. 0	0.2 5
		A1 : Ear lobe – (Correct Alternative)		
		A2 : Medulla		
		A3 : Cerebrum		
		A4 : Hand		

Objective Question				
99	99	In diabetic monitoring the glucometer is used to measure blood glucose. In glucometer which enzyme is can be used for glucose identification	1.0	0.25
		A1: Glucose oxidase		
		A2: Glucose hexokinase		
		A3: None of the above		
		A4: Both of the above – (Correct Alternative)		

Objective Question				
100	100	The range of normal (Gaussian) distribution is:	1.0	0.25
		A1: – n to + n		
		A2: 0 to ∞ – (Correct Alternative)		
		A3: -∞ to + ∞		

Objective Question				
101	101	Which one of the following communication system has the highest frequency of operation?	1.0	0.25
		A1: Optical fiber communication – (Correct Alternative)		
		A2: GSM 900		

		A3: LTE		
		A4: FM radio		

Objective Question

102	102	If A is defined as $$A = \int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi x}} e^{\frac{-y^2}{2x^2}} dy$$ The value of A is	1.0	0.25
		A1: **1 – (Correct Alternative)**		
		A2: 0		
		A3: cannot be computed		
		A4: depends on x		

Objective Question

103	103	In a medium with a permittivity of ε_c, two positive charges, Q coulombs each, are placed at points (0,0,0) and (2,2,0) while two negative charges, Q coulombs each, are placed at points (0,2,0) and (2,0,0). The electric field intensity at the point (1,1,0) is	1.0	0.25
		A1: **zero – (Correct Alternative)**		

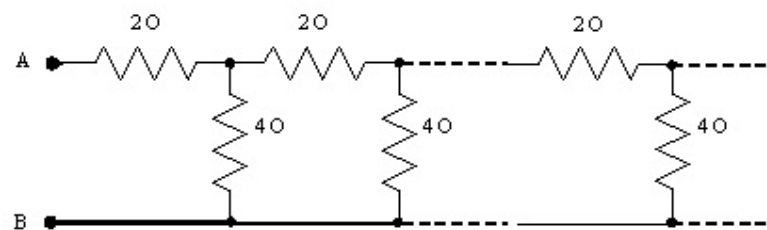A2
:

$$\frac{Q}{4\pi\epsilon_0}$$

A3
:

$$\frac{Q}{8\pi\epsilon_0}$$

A4
:

$$\frac{Q}{16\pi\epsilon_0}$$

Objective Question

| 10 4 | 104 | An infinite ladder of resistance is connected as shown below: | 1. 0 | 0.2 5 |

An infinite ladder of resistance is connected as shown below:

The equivalent resistance between the point A and B is

A1
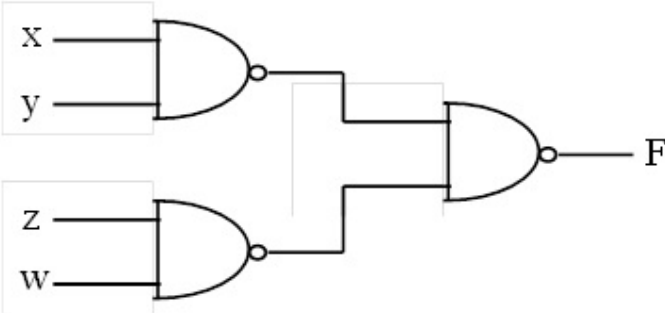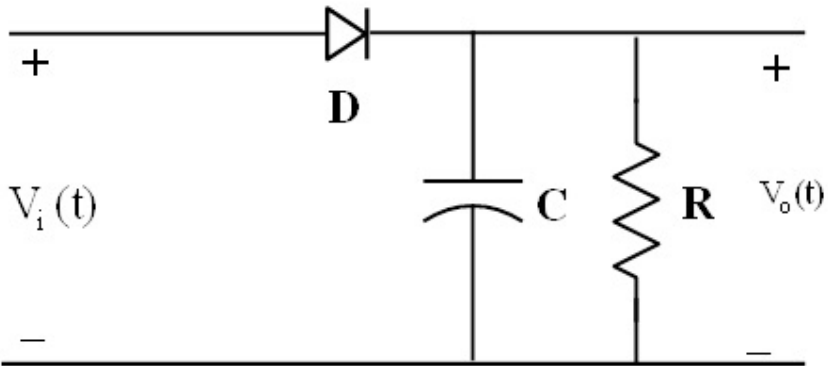**:** 4Ω – (Correct Alternative)

A2
: 2Ω

A3
: 6Ω

A4
: Infinity

Objective Question

10 5	105	The unit circle of the Nyquist plot transforms into 0 dB line of the amplitude plot of the Bode diagram at	1. 0	0.2 5
		A1 : DC		
		A2 : low frequency		
		A3 : high frequency		
		A4 : any frequency – (Correct Alternative)		

Objective Question

10 6	106	The function F implements the logic	1. 0	0.2 5
		A1 : xy+zw – (Correct Alternative)		
		A2 : xyzw		
		A3 : $x'y' + z'w'$		
		A4 : $x'y'z'w'$		

Objective Question

| 107 | 107 | In the circuit below, R denotes resistance, C denotes capacitance, D denotes p-n junction diode. The circuit can act as an | 1.0 | 0.25 |

A1 : Half wave rectifier

A2 : Full wave rectifier

A3 : Envelope detector – (Correct Alternative)

A4 : High pass filter

Objective Question

| 108 | 108 | The coil is self- resonant at 20 MHz and has a Q factor of 200. The effective Q factor at a frequency of 500 MHz is | 1.0 | 0.25 |

A1 : 188 – (Correct Alternative)

A2 : 100

		A3 :	288		
		A4 :	88		

Objective Question

109	109	An example of a combinational circuit is	1.0	0.25
		A1 : adder – (Correct Alternative)		
		A2 : counter		
		A3 : shift register		
		A4 : flip flop		

Objective Question

110	110	Two identical coaxial circular loops carry the same current circulating in the same direction. If the loops approached each other, then the current in	1.0	0.25
		A1 : Each one of them will increase. – (Correct Alternative)		
		A2 : Both of them will remain the same.		
		A3 : Each one of them will decrease		
		A4 : One will increase while in the other the current will decrease		

11 1	111	In a homogeneously doped n-type semiconductor bar, holes are injected at one of the bar. How will the holes flow to the other end?	1.0	0.25

A1: By drift mechanism only.

A2: By diffusion mechanism only – (Correct Alternative)

A3: By combination of drift and diffusion mechanisms

A4: By recombination mechanism

11 2	112	A single phase full-bridge diode rectifier delivers a constant load current of 10 A. Average and rms values of source current, are respectively	1.0	0.25

A1: 5 A, 10 A

A2: 10 A, 10 A – (Correct Alternative)

A3: 5 A, 5 A

A4: 0 A, 10 A

11 3	113	While using a bipolar junction transistor as an amplifier, the collector and emitter terminals got interchanged mistakenly. Assuming that the amplifier is a common emitter amplifier and the biasing is suitably adjusted, the interchange of terminals will result into which one of the following ?	1.0	0.25

		A1: Zero gain.		
		A2: Infinite gain		
		A3: Reduced gain – (Correct Alternative)		
		A4: No change in gain at all		

Objective Question

114	114	Consider Fourier representation of continuous and discrete-time systems. The complex exponential (i.e.,signals), which arise in such representation, have	1.0	0.25
		A1: Same properties always. – (Correct Alternative)		
		A2: Different properties always		
		A3: non-specific properties		
		A4: Mostly same properties		

Objective Question

115	115	Two identical first-order systems have been cascaded non-interactively. The unit step response of the systems will be	1.0	0.25
		A1: Overdamped.		
		A2 Underdamped		

:

A3
:
Undamped

A4
: **Critically damped – (Correct Alternative)**

Objective Question

116	116	For an n-bit binary adder, what is the number of gates through which a carry has to propagate from input to output?	1.0	0.25

A1
:
n

A2
: **2n – (Correct Alternative)**

A3
:
n^2

A4
:
n + 1

Objective Question

117	117	Which one of the following is an indirect way of generating FM?	1.0	0.25

A1
:
Reactance FET modulator .

A2
:
Varactor diode modulator

A3
: **Armstrong modulator – (Correct Alternative)**

A4
:
Reactance tube modulator

Objective Question

118	118	What is the modulation index of an FM signal having a carrier swing of 100 kHz and modulating frequency of 8 kHz ?	1.0	0.25

A1 : 4.75

A2 : 5.5

A3 : 6.25 – (Correct Alternative)

A4 : 7.5

Objective Question

119	119	A small elemental wire antenna is excited with a sinusoidal current of frequency 1 MHz. The induction field and radiation field are at equal distance d from the antenna. The value of d will be nearly	1.0	0.25

A1 : 300 m

A2 : 50 m – (Correct Alternative)

A3 : 150 m

A4 : 20 m

Objective Question

120	120	For the microwave antenna	1.0	0.25

A1
: Shape only depends on the frequency range used.

A2
: Size only depends on the frequency range used

A3
: Neither shape nor size depend on the frequency range used

A4 Both shape and size depend on the frequency range
: used – (Correct Alternative)